SECTION 2.1

RUSSIAN/BODEGA WATERSHED MANAGEMENT AREA

The following draws upon knowledge obtained through public involvement, agency contacts, and the personal experience of Regional Water Board staff. Significant strategy development and implementation are occurring in the management area at the present time. We recognize that the problem identification and watershed assessment and the strategy development are not complete, and that further involvement will improve the effort. This document contains a summary of existing and planned actions based on current knowledge of the Regional Water Board staff.

MANAGEMENT AREA DESCRIPTION

This management area includes the Russian River and Bodega hydrologic units numbers 114.00 and 115.00, respectively. Within those units are the entire Russian River watershed (114.00), and Salmon Creek, Bodega Bay (including Bodega Harbor), Americano Creek, and Stemple Creek watersheds (115.00) (Figure 2.1-1).

Russian River Hydrologic Unit

The Russian River hydrologic unit encompasses 1485 square miles in Mendocino and Sonoma counties, bounded by the Coast Ranges on both the east and west. The mainstem is about 110 miles long, flowing southward from Redwood and Potter valleys (north of Ukiah) to its confluence with Mark West Creek, where it turns west to cut through the coast range and empties into the Pacific Ocean at Jenner (Figure 2.1-1.) The principal tributaries from the headwaters down are the East Fork Russian River, Feliz, Pieta, Big Sulfur Creek, Dry Creek, Mark West Creek (including the Laguna de Santa Rosa), Green Valley Creek, and Austin Creek. Elevations range from sea level at the estuary near Jenner to 4,343 feet at the summit of Mt. St. Helena in the Mayacama Mountains.

Two reservoirs provide flood protection and water supply storage: 1) Coyote Dam and Lake Mendocino on the East Fork Russian River near Ukiah, and 2) Warm Springs Dam and Lake Sonoma on Dry Creek west of Healdsburg. A diversion from the Eel River through the Potter Valley powerhouse flows into the East Fork and Lake Mendocino. The Russian River hydrologic unit supplies drinking water, including ground water supply to over 500,000 people and a varying amount of water for agricultural purposes. The State Division of Water Rights has declared the Russian River tributaries fully appropriated from April 1 through December 14. The Water Rights Division is in the process of developing a strategy to deal with additional diversions in the mainstem and tributaries outside of the fully appropriated period. The majority of flow in the Russian River is during the winter season, when average rainfall ranges from 30-80 inches, depending on locale. The summer climate is moist and cool near the coast with temperatures increasing in the upper valley areas that are more isolated from the coastal influence.

Bodega Hydrologic Unit

The Bodega unit is typified by cooler temperatures and relatively high rainfall due to coastal influences. The terrain in this unit is relatively steep, with the streams carving through the Coast Range and entering the Pacific Ocean south of the Russian River. Salmon Creek, Americano Creek, and Stemple Creek and their associated estuaries are the main waterbodies. These streams are located in erosive topography and are sensitive to land disturbance. Summertime flows are often non-existent in Americano Creek and Stemple Creek, while Salmon Creek flow is low but sustained.

The three major watersheds in the Bodega unit each have estuary areas. However, the most notable are the Estero Americano (Americano Creek) and the Estero de San Antonio (Stemple Creek). Those

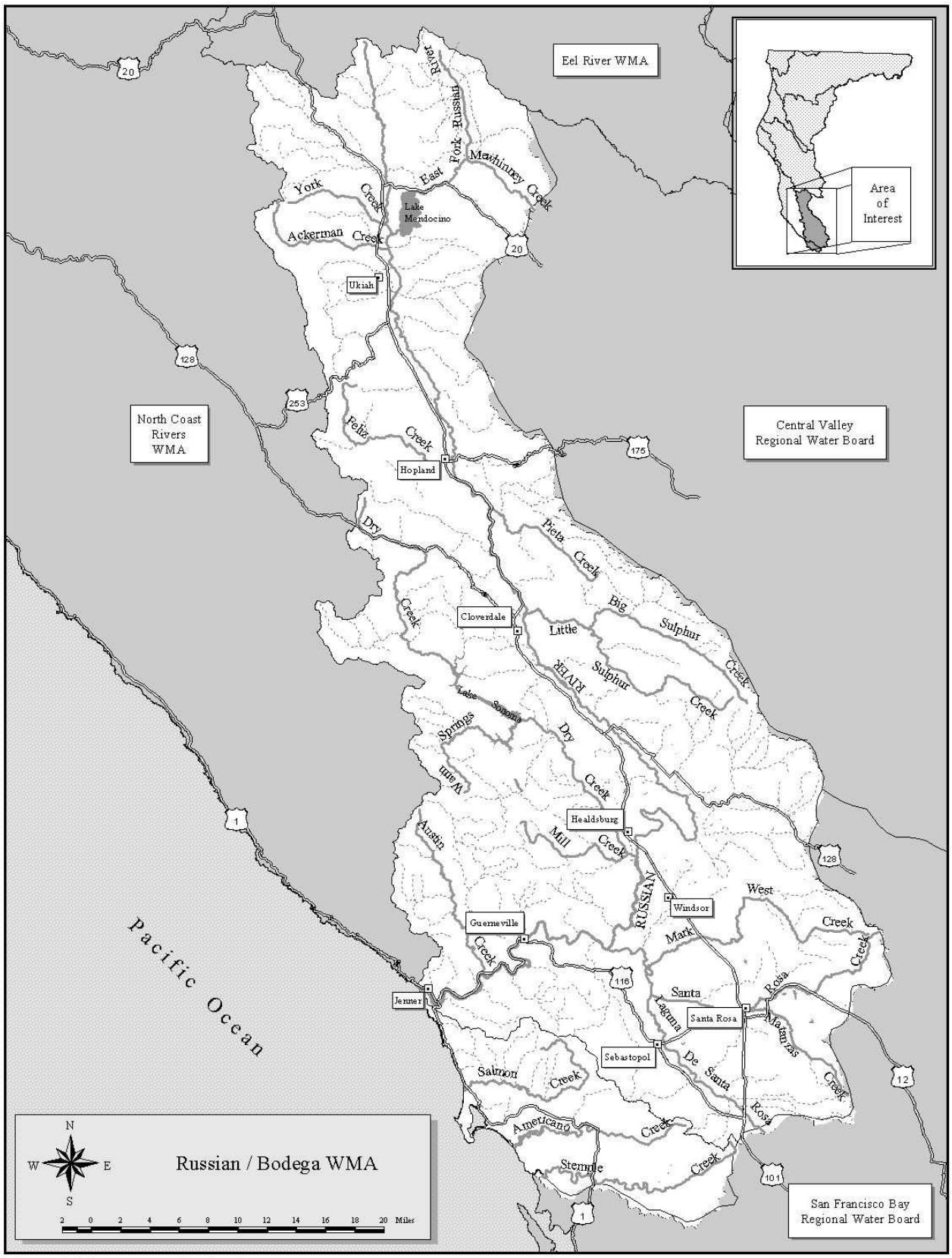

Figure 2.1.1. Russian / Bodega WMA

two estuaries are prized for their resemblance to fjords and the resource values associated with isolated estuarine areas.

IMPLEMENTATION STRATEGY

Significant strategy development and activities for water quality protection and improvement are occurring in the WMA at this time. A California Resources Agency effort, coupled with a US Army Corps restoration effort, brought together a large group of stakeholders in the watershed. The Russian River Watershed Council (RRWC) has formed to address watershed management issues. The vision is to make decisions on land use and water management by recognizing the effects of such decisions on all facets of the watershed. Additionally, the Sonoma County Water Agency contracted with the Regional Water Board for a three-year project to review water quality standards and regulatory mechanisms for compliance with a "no take" provision for salmonids under the federal Endangered Species Act (FESA). That project involves public workshops, meetings, and hearings.

A Regional Water Board staff watershed team is coordinating activities in the WMA to better address issues and problems, taking into account the level and timing of other agency's watershed activities. The Regional Water Board watershed team also helped develop the watershed assessment and problem identification section presented later in this document. This effort included both the public and special interest groups. Continued coordination and assessment will fine-tune the planning and management activities in the future. The Regional Water Board team will develop focus groups, such as the Russian River Water Quality Monitoring Committee (explained below), to address specific issues and problems as they arise.

Public participation provides the added perspective of the resource users, helps identify any other issues not currently apparent, and thus refines the prioritization process. Public participation also serves as a forum to disseminate information obtained during the assessment and implementation process.

Institutional Framework

The following is a brief description of the existing agency and public framework with respect to water quality issues. It is not all-inclusive and will be refined through the public participation process. The Sotoyome Resource Conservation District prepared a matrix of agency's abilities and jurisdictions in December, 1996. That matrix needs to be updated, however a partial list of agencies and groups is provided in Appendix 2.1-A.

The *Water Quality Control Plan for the North Coast Region* (Basin Plan) contains specific water quality objectives and implementation programs to protect and enhance identified beneficial uses of water. Over-arching regulatory provisions are contained in the discharge prohibitions section of the Basin Plan. Point source waste discharges to all freshwater surface waters in this management area are prohibited by the Basin Plan with the exception of the Russian River and its tributaries. Criteria for evaluating individual wastewater treatment and disposal systems are also contained in the Basin Plan. The Russian River watershed is a large portion of the Russian/Bodega WMA.

For the Russian River and its tributaries point source, direct discharges of treated municipal wastewater are allowed (by NPDES permits) during the period of October 1 through May 14 and at 1% of the flow of the receiving water. In addition, these municipal dischargers must meet, or be on a time schedule to meet, advanced waste treatment levels (essentially tertiary treatment without full nutrient removal). The Basin Plan allows exceptions to that provision as specified in individual action plans in the Basin Plan. The City of Santa Rosa has an exception, specified in Resolution No. 89-111 that allows discharge rates as high as 5% of the flow rate of the Russian River when approved by the Regional Board's Executive Officer. Several industrial wastewater discharges are allowed under provisions of NPDES permits that require compliance with applicable water quality standards.

Likewise, discharges from the cleanup of contaminated ground water, discharges from leaky underground petroleum storage tanks sites are permitted in low volumes and at nondetectable contaminant levels. The City of Santa Rosa, Sonoma County and the Sonoma County Water Agency are co-permittees under a NPDES municipal storm water permit for storm water point source discharges in the Santa Rosa area.

The Regional Water Board has entered into a contract agreement with the Sonoma County Water Agency (SCWA) to review water quality standards and regulations of the SCWA in the Russian/Bodega WMA for compliance with a "no take" provision for salmonids under the federal Endangered Species Act (FESA). Waterbodies in the WMA will be assessed against existing and proposed new standards and permits under the contract, and opportunities to improve water quality and salmonid resources will be identified. Other activities conducted by the SCWA and by Sonoma County are also being reviewed for compliance with the FESA. Subsequent modification of the Basin Plan standards and SCWA permits may be necessary.

The Regional Board has an open public process for permit adoption and renewal, as well as Basin Plan changes. Many pending actions are available for public review on our Regional Board website. In addition, staff formed a Russian River Water Quality Monitoring Committee in May of 1994 to enhance communication, identify and prioritize water quality issues, identify water quality monitoring needs, and improve coordination among agencies and public interest groups. The Committee was composed of agencies and public as listed in Appendix 2.1-A, and met about every month until late 1995. They prioritized a list of issues and provided direction on monitoring and assessment activities by the Regional Board staff, as well as assisting in some of those activities through a volunteer program.

Summary of Regional Water Board Activities

The general emphasis in the watershed is to enhance interagency and public coordination, protect existing uses, continue to implement and improve existing permitting programs, clean up contaminated ground water, implement preventative point and nonpoint source programs to protect surface and ground water, assess, monitor, and improve the biotic health of the system, reduce nutrient and sediment loading in selected sub-watersheds, and support efforts to improve the channel and riparian areas. We plan to accomplish these goals through increased efforts at assessing and evaluating compliance with water quality objectives through reviewing self monitoring reports, conducting compliance inspections and updating permits on a regular cycle. Staff will continue to respond to complaints regarding unpermitted discharges and violations of permit conditions. We have established Regional Water Board programs that address traditional point source pollution sources that primarily consist of municipal and industrial wastewater treatment and disposal.

We are implementing federal storm water permitting programs that address the control of pollutants contained in storm water runoff from industrial, municipal and construction sites. Industrial facilities are required to design and implement appropriate "best management practices" (BMPs) to limit pollutants in storm water runoff. Construction projects involving total ground disturbance of five acres or more (reduced to one acre or more in 2003 pursuant to recent Phase II storm water amendments to the Clean Water Act) are required to implement appropriate BMPs to control pollutant discharges during construction. In addition, provisions of this construction permit require implementation of controls to reduce post development impacts from potential increases in pollutant and runoff loads. A municipal NPDES storm water permit has been issued to the City of Santa Rosa/SCWA and the County of Sonoma requiring them to conduct activities aimed at reducing pollution due to the City's storm water discharges. Phase II of the storm water program will require that several smaller municipalities as well as state and federal facilities obtain municipal storm water permits. In addition, the State Water Resources Control Board has issued a statewide municipal NPDES storm water permit

to the California Department of Transportation (CalTrans) requiring the agency to control storm water runoff from their transportation system. Regional Board staff are responsible for enforcing this permit for CalTrans discharges within this Region.

Nonpoint source waste discharges from the dairy industry and other agricultural operations are being addressed by education and outreach efforts for the agricultural community. The significant contribution of sediment from the increasing installation of vineyards on hillsides and other areas is not well controlled. Regional Water Board involvement has increased with recent funding to develop a comprehensive outreach program. Enforcement capabilities are retained for specific cases. Sonoma County requires a grading permit for some vineyard development and has passed a local vineyard ordinance that places certain restrictions on new vineyard development.

Regional Board staff continue to regulate activities involving "dredge and fill" within surface waters, including wetlands. Staff is responsible for ensuring that these projects comply with all applicable state standards, including the State's "no net loss" policy for wetland impacts. State certification (401 Certification) is required by provisions of the Clean Water Act (CWA) in order for federal CWA 404 permits to be issued.

Assessment:
We intend to focus assessment efforts on identified concerns regarding objectives attainment (e.g., dissolved oxygen, bacterial quality, sedimentation), biological health (e.g., presence of xenobiotic estrogen responses in fish, benthic macroinvertebrate populations), evaluation of Basin Plan water quality objectives regarding federal Endangered Species Act (FESA) compliance (e.g., dissolved oxygen, temperature), ground water quality, and water quality and watershed modeling to assess the relative importance of various factors to changes in water quality. The biennial Water Quality Assessment under Clean Water Act section 305(b) will be supported by the assessment and monitoring activities, including listings for section 303(d).

A proposed project by the Sonoma County Water Agency to gather existing data into a common format for use in watershed assessment and FESA-listed fish recovery planning will be coordinated with two other similar efforts: 1) the National Marine Fisheries Service is developing GIS coverage of the Russian River watershed in support of salmonid recovery planning and general watershed protection and restoration, and 2) the Russian River Watershed Council is developing a contract for an interactive information system, that will include GIS and other information. The intent is to enhance these two projects through close coordination.

Monitoring:
Water quality monitoring efforts will be focused on maintaining four long-term monitoring stations in the Russian River watershed TMDL confirmation monitoring in the Laguna de Santa Rosa, and expanding the temperature monitoring consortium for the watershed to include other water quality parameters. Those activities will be funded through the SWAMP (Appendix E). Activities also include ground water quality assessment, and public participation. Specific monitoring for pathogens will continue in the Russian River and Santa Rosa Creek as a result of the identification of bacteria problems in these watersheds. Additional needs in the smaller watersheds in the Bodega Unit including monitoring in the Stemple Creek watershed, and monitoring and assessment in the Americano Creek, Cheney Gulch, and Salmon Creek watersheds will be addressed in the SWAMP rotation in FY 2004-05. Additional options we will consider for improved and enhanced monitoring include the establishment of long-term photo records, fostering voluntary monitoring by individuals and watershed groups; reviewing the USEPA Rapid Bioassessment Protocol, providing spatial analysis of surface and ground water data, and increased coordination with local universities and the UC

Extension Service for education and outreach. Additional monitoring and assessment needs are provided in Appendix 2.1-B.

Core Regulatory:
We will continue to support the core regulatory program to the extent feasible based on available resources, and program and water quality priorities. Priorities and expected workloads are contained in annual program workplans developed each year by State and regional Board staffs.

Ground water:
Cleanups related to the leaky petroleum underground storage tank program, Superfund program, and other ground water remediation programs will continue for any new and all existing ground water contamination sites. The highest priority cleanup activity is related to PCE contamination at West College Avenue and Clover Drive in Santa Rosa. Continued public outreach and education regarding hazardous waste handling and the potential for ground water contamination is a priority in preventing future problems. The Source Water Assessment Program administered by the California Department of Health Services may provide additional water quality protections for both ground water and surface water supplies.

Water Quality Certification:
The watershed is seeing a considerable increase in projects involving dredge/fill within waters of the US. Most of these projects are a result of development related impacts in the Santa Rosa plains. Adequate staff funding is needed to completely implement the 404/401 program. Staff continues to pursue innovative approaches to assure appropriate review and certification of all projects. High priority projects (those with a potential for adverse impacts) will continue to receive a complete review.

Nonpoint Source Program:
The long-term goals of this program are described in the Introduction section of this document. However, specifics regarding this WMA include:

- continue promoting self-determined implementation of best management practices in the dairy industry and other agricultural operations thorough coordinated outreach and education with local agencies and watershed groups regarding land use effects on water quality, following the State Nonpoint Source Management Plan strategy of first emphasizing self directed implementation of controls to reduce nonpoint source pollution
- assisting the local Resource Conservation Districts (RCDs) and other agencies with CWA section 205(j). 319(h), and Water Bond (Proposition 13) projects to address riparian issues, sedimentation, and nutrient discharges
- addressing forestry issues under the Management Agency Agreement with the California Department of Forestry. When appropriate, monitoring and reporting programs may be issued to achieve compliance with the Basin Plan.
- assisting in the continuing implementation of the *Total Maximum Daily Load and Attainment Strategy for the Stemple Creek Watershed*, and for the *Laguna de Santa Rosa Watershed.*
- expanding the outreach program to educate hillside vineyard landowners of best management practices for prevention of increased sedimentation of waters of the State and protection of the beneficial uses of water, and conducting enforcement activities as needed to address erosion from hillside vineyards. Continuing outreach activities intended to assist in project development, water quality improvement and continued monitoring and assessment.

Additional nonpoint source program detail is provided in Appendix D.

Local Contracts:
Our active outreach program will continue, as well as the CWA sections 319(h) and 205(j) and Water Bond grant programs.

Water Quality Planning:
The Basin Plan review process assists in identifying issues that may affect the Russian/Bodega WMA, including the following:

- evaluate numeric and narrative dissolved oxygen, and temperature objectives,
- consider numeric and narrative objectives for nutrients and aluminum,
- establish fish habitat criteria,
- review nonpoint source control measures,
- develop a comprehensive action plan for the Russian River,
- review water quality impacts from gravel mining, and
- evaluate cumulative impacts
- evaluate wetland and stream system protection measures

Evaluation and Feedback
Implementation progress will be reviewed annually, and adjustments made to the next year's work based on that review. Additionally, an evaluation of the progress and process will occur at the end of the five-year cycle. The evaluation may result in changes to the overall program, and the Regional Water Board may be able to apply discretionary funding to priority work efforts on a watershed basis. A summary of activities identified and completed by this process will be included in an appendix at a later date.

ASSESSMENT AND PROBLEM IDENTIFICATION

The following analysis is based on existing knowledge of issues and problems in the Russian River basin from long-term water quality monitoring, discharger regulation, water quality planning, nonpoint source program efforts, and public involvement. However, the following analysis may not constitute a full assessment, and will be updated annually.

The watershed planning process in the North Coast Region is intended to provide an administrative tool to facilitate budgeting decisions on the basis of issues, concerns, and problems and completed watershed analyses. As such, numerous new activities were identified and prioritized by the Russian/Bodega Watershed Team. However, inadequate funding for existing programs makes it difficult to address new issues. If additional funding becomes available, we will strive to address those issues in a priority order. To the extent Regional Water Board staff can, they will be sensitive to and address the additional actions identified within the goals and priorities.

Russian River Hydrologic Unit
The watershed is agriculturally based, with urban and industrial uses concentrated around the incorporated municipalities. The most notable are Ukiah, Cloverdale, Healdsburg, Windsor, Rohnert Park, Cotati, Sebastopol, and Santa Rosa. The largest concentration of urban and industrial use is in the Santa Rosa Plain, with Ukiah and Windsor second and third. Industrial uses include electronics manufacturing industries, petroleum distribution plants, light manufacturing, wrecking and salvage yards, wineries, wood products, and industries related to the construction industry, with Santa Rosa as the commercial distribution center for the North Coast.

In the Potter Valley area north of Ukiah, irrigated agriculture and pasturing are common. Rangeland and mixed coniferous forests (with minimal timber harvesting) are prevalent in the hills away from the farmed alluvial plains. Around Ukiah, irrigated orchard and vineyard are common land uses with light industry, several large wood products facilities associated with the timber industry, and gravel mining. Water quality issues in this part of the watershed are primarily associated with industrial areas, wastewater treatment plants, water use, erosion and sedimentation in the tributaries, destruction of riparian areas, and agricultural chemical uses in the alluvial areas.

Moving down the watershed, the Hopland area is predominantly vineyard with rangeland grazing in the areas away from the mainstem. The river then cuts through a small canyon with rangeland grazing as the primary land use before reaching Cloverdale and more vineyards. Vineyards dominate the valley areas down to the Santa Rosa Plains. Vineyard development in the hillside areas adjacent to the alluvial terrace is an increasing concern from the standpoint of erosion and sedimentation. Gravel terrace pits are another feature interspersed in the alluvial plain. In addition to the water quality issues upstream, bank erosion, health of riparian areas, construction activities, and more industrial, commercial, household, and agricultural chemical uses rank high as concerns for this area.

The Santa Rosa Plain and Healdsburg hydrogeologic areas contain large ground water basins, supplying water for municipal, domestic, industrial and agricultural uses. The Santa Rosa Plain and tributary uplands include a number of animal facility operations. There are currently 24 active dairies in the Mark West Creek (Laguna de Santa Rosa) watershed. Conversion of timberland, rangeland, pasture, and orchards to vineyard has increased in the last decade. The availability of reclaimed wastewater produced by the City of Santa Rosa operated sub-regional municipal wastewater treatment facility has resulted in conversion of about 6,500 acres of rangeland to irrigated pasture, cultivated fodder crops, and other uses. The Santa Rosa Plain is the most populated area in the North Coast Region with six incorporated communities and over 200,000 residents (1990 US Census). A number of large river terrace pit-type gravel mines are located downstream of Healdsburg.

The trend appears to be towards continued conversion of range, pasture and forest lands to vineyards, and continued growth of the urban areas of Ukiah, Cloverdale, Healdsburg, Windsor, Santa Rosa, and Rohnert Park. Associated with that growth are active construction sites and an increase in light industrial operations. A concerted effort is being made in the Santa Rosa Plains to retain the reclaimed wastewater irrigated crop and pastureland type of agriculture and maintain the viability of the dairy industry. However, significant conversion of rangeland and pasture to vineyards continues to occur. The market for premium North Coast wine grapes far outstrips supply. Therefore, the pressure for land conversion to vineyards probably will not diminish.

The Laguna de Santa Rosa watershed drains the southern two-thirds of the Santa Rosa Plain. The Laguna de Santa Rosa, that is a major tributary of Mark West Creek, is listed for nutrient and dissolved oxygen impairment on the Clean Water Act section 303(d) list. Nutrient and dissolved oxygen impairments result from both point and nonpoint source discharges and the hydrology of the watershed. An active waste reduction strategy is underway per section 303(d) requirements, including the development of waste loading limitations.

The Russian River turns to the west and cuts through the Coastal Range downstream from the confluence of the Laguna de Santa Rosa and Mark West Creek tributary area. This downstream physical structure of the river has a lower gradient and the summer base flow occupies most of the low flow channel. The lower Russian River hillsides are steep and forested with mixed conifers, redwoods being the major component. Residential areas are periodically along the river with a number of them located on the narrow flood plain. Land uses are consistent with the semi-rural setting with vineyards and pastures located on the flood plain benches. Industrial activity is associated primarily with timber

(harvesting and lumber) and the construction trade. Tourism associated with summer recreational use of the river is a major economic base. Growth has been sporadic. The 1990 census lists five unincorporated communities with less than 10,000 residents. Water quality concerns include effects from upstream land use activities in both urban and rural areas and include individual on-site septic system problems and erosion and sedimentation problems from tributary streams.

As the river flood plain flattens to meet the ocean, the river widens into a relatively narrow estuary in the Jenner area. Land use is predominantly rangeland grazing and timber production.

Current Water Quality Conditions

Russian River sampling programs conducted over the last 20 years indicate substantial improvements in water quality. Pollution control efforts with respect to point sources (municipal and industrial waste treatment and discharge) and nonpoint sources (agricultural runoff, urban and industrial runoff, and septic tank practices) are largely responsible for improvements in water quality (*Interim Staff Report Regarding Russian River Water Quality Monitoring*, January 27, 1993, currently being revised).

Toxic substances have rarely been detected in the water column. Sediment sampling in 1985-86 and again in 1995 detected no pesticides in sediments. Monitoring of heavy metals exhibited no trends, with the exception of higher zinc concentrations downstream from the more urbanized areas.

Toxic substance sampling in resident fishes and in transplanted freshwater clams does occasionally detect pesticides and/or heavy metals. However, the only significant trend is the presence of mercury in fish flesh from lakes (Pillsbury, Mendocino, and Sonoma) (Toxic Substance Monitoring Program data reports, 1976-1995; *Sediment Sample Results for Organic Chemicals, Metals, and Nutrients in the Laguna de Santa Rosa/Mark West Creek System and the Russian River*, 1985-86 and 1995, in draft form). The issue of mercury in fish flesh was referred to the California Office of Health and Hazard Assessment for their analysis and action and a health advisory issued for Lake Pillsbury.

The major water quality issues associated with the Healdsburg and Santa Rosa Plain areas are concentrated downstream from the urbanized areas (storm water runoff, chemical usage, wastewater), and where animal facility operations (primarily dairies), cultivated agriculture, and industrial sites are located. Toxic discharges (primarily petroleum products and solvents from leaky underground storage tanks and other industrial sites) have affected ground water resources, with municipal supply wells for the City of Sebastopol and City of Santa Rosa being shut down due to toxic chemical contamination. Toxic chemicals also contaminate many individual wells in the area, most notably threatening 140 wells in the West College Avenue at Clover Drive area in Santa Rosa.

Less than 5% of the timber harvested in the Region comes from this watershed area. However, there is a close interface between the urban community and small landowners that conduct timber harvesting. The primary issues deal with stormwater runoff impacts on domestic water supplies and fisheries. Forest herbicides are also a great concern to small landowners. Nuisance that can result from the discharge of sediment, organic debris, but increase stream temperature is a greater concern in the urban/forestry interface.

Sedimentation, riparian area destruction, low stream flows, bacteria, stream modification practices and high water temperatures have been identified as concerns in the tributaries. The Russian River watershed was added to the section 303(d) list for sedimentation issues in December of 1997. Further assessment of conditions and actions to reduce impacts to the anadromous fishery from excessive erosion and sedimentation will be a priority for the future. The streambed of the mainstem of the Russian River through this area has downcut considerably due to a variety of factors. Obvious

problems associated with that downcutting include bank erosion, downcutting of tributaries and the threat of barriers to fish migration due to excessive elevation changes between the tributaries and the mainstem, and lowering ground water elevations in the alluvial terraces. Exacerbating these problems is the large-scale invasion of exotic giant reed, *Arundo donax*, along the riparian areas of streams in the Russian River watershed. Concern is high and actions to address this problem are being discussed, including eradication by a variety of methods.

The Laguna de Santa Rosa is seasonally eutrophic. A TMDL has been developed and implementation is underway to reduce and/or eliminate nutrient sources necessary to improve water quality. Clean Water Act grant funding has been utilized for upgraded publicly owned treatment facilities in the watershed since 1972. A watershed task force developed recommendations for managing resources in the watershed, and the Laguna Foundation promotes restoration of wetland and other wildlife and water quality resources in the watershed. A Waste Reduction Strategy (TMDL) is being implemented and tracked with attainment of dissolved oxygen objectives and the USEPA ammonia criterion as the goal (*Waste Reduction Strategy for the Laguna de Santa Rosa*, North Coast Water Quality Control Board, March 1, 1995; *Laguna de Santa Rosa Water Quality Objective Attainment Plan*, CH2M Hill Consulting, June 1994 *Investigation for Nonpoint Source Pollutants in the Laguna de Santa Rosa, Sonoma County*, North Coast Water Quality Control Board, September 24, 1992). Ammonia goals were met ahead of schedule, but dissolved oxygen continues to be a problem due to enriched bottom deposits in the Laguna.

Bodega Hydrologic Unit

This Bodega Hydrologic management unit is typified by rangeland grazing and animal facility operations, including dairies and some timber production in the Salmon Creek watershed. Although the community of Bodega Bay (in the Bodega Harbor watershed) has experienced some development in the last decade, the growth has been minimal in comparison to the growth that has occurred in the Santa Rosa Plain. The population of the Bodega Bay area was 1127 residents according to the 1990 census.

Americano Creek and Stemple Creek are Clean Water Act section 303(d) listed for water quality impairment associated with high ammonia and low dissolved oxygen (*Stemple Creek Water Quality Characteristics and a Maximum Daily Load Process, Marin and Sonoma Counties*, North Coast Water Quality Control Board, August 15, 1995). A watershed group was formed in the Stemple Creek watershed to address erosion and animal facility operation waste issues. A section 303(d) *Total Maximum Daily Load and Attainment Strategy for the Stemple Creek Watershed* was developed and adopted by the Regional Water Board in 1997 to address sediment and nutrient issues. Water quality improvements have been documented in the last two years as a result of activities in the watershed.

The coastal watersheds (Stemple Creek Americano Creek, Salmon Creek, and other smaller tributaries to Bodega Bay) located south of the Russian River have historically received little attention from a water quality sampling perspective. However, Americano Creek will be targeted for a waste reduction strategy similar to Stemple Creek in the next few years. The California Department of Fish and Game is presently conducting water quality monitoring in Stemple Creek and Americano Creek. However, we are unsure of the future of that monitoring. The Marin/Sonoma Farm Bureau's Animal Resource Management Committee is implementing a citizen voluntary monitoring program for the Stemple and Americano Creek watersheds.

WATER QUALITY GOALS AND ACTIONS

The following discussion of issues and problems for the Russian/Bodega WMA is not in order of priority, and was compiled from the combined knowledge of Regional Water Board staff, from agency and public involvement at Regional Water Board and other meetings, and meetings of the Russian

River Water Quality Monitoring Committee. As discussed in the Implementation strategy, funding constraints limit our ability to do some mandated tasks primarily associated with core regulatory activities. The prioritization of the goals and actions may allow us to focus new funding on the highest priority items as that funding becomes available, depending on the tasks that the new funding is intended to address. Additionally, priority listing provides a picture of issues not addressed as funding is reduced.

The primary water quality goals focus on protecting beneficial uses of surface and ground water such as salmonid fishery values, recreation, and domestic, municipal and agricultural water supply. Maintaining the core regulatory activities associated with point source waste discharges to surface and ground water from municipal and industrial sites is a high priority. Permitting, compliance inspections, enforcement and cleanup activities are performed on those facilities with the highest threat and/or actual impact on water quality. We will continue our program of investigation and follow-up of spills and complaints regarding water quality problems. Discharges of PCE, petroleum hydrocarbons, pesticides, nutrients, bacteria and sediment will be the primary pollutants of concern.

Nonpoint source discharges are addressed by the core regulatory program storm water permits and inspections, and by the nonpoint source program through timber harvest inspections, outreach, grants, and promoting land management measures that are protective of beneficial uses. The nonpoint source issues are more difficult to address due to their diffuse nature. We have increased our emphasis on animal facility waste control, erosion control, riparian improvements, and fishery habitat enhancement. The primary concerns include sedimentation, nutrients, and riparian destruction.

The nine Goals for the Russian/Bodega WMA are related through the beneficial uses they address:

- **GOAL 1: Protect surface water uses MUN, REC-1, REC-2**
- **GOAL 2: Protect and maintain ground water quality and quantity for the beneficial uses of domestic, municipal, agricultural, and industrial water supply uses**
- **GOAL 3: Protect/enhance coldwater fisheries**
- **GOAL 4: Protect/enhance warmwater fisheries**
- **GOAL 5: Protect aquatic life and public health in Bodega Harbor**
- **GOAL 6: Objectives attainment in the Laguna de Santa Rosa**
- **GOAL 7: Stemple Creek and Americano Creek Waste Reduction Strategies**
- **GOAL 8: Water Rights Coordination**
- **GOAL 9: Assessment of Salmon Creek and other tributaries**

Protection of surface water (Goal 1) for the primary beneficial uses MUN, REC-1 and REC-2 will in most cases protect all other beneficial uses. The MUN (municipal and domestic supply) beneficial use designation is for uses of water for community, military or individual water supply systems including, but not limited to, drinking water supply. It demands, therefore, the highest quality of water. The REC-1 (water contact recreation) beneficial use designation is for uses of water for recreational activities involving body contact with water, where ingestion is reasonably possible. This beneficial use also demands a high degree of water quality. If MUN and REC-1 beneficial uses are protected, agricultural and industrial supplies are also protected which relates Goal 1 to Goal 2 (ground water protection).

The protection of cold and warm water fisheries (Goals 3 and 4) requires the protection of surface and ground waters (Goals 1 and 2) along with additional concerns for siltation, habitat loss, low tributary flows and water temperature. When these additional concerns are met, Goals 6, 7, and 9 (Laguna de

Santa Rosa, Stemple Creek and Americano Creek, and Salmon Creek and the remaining coastal tributaries) will also be addressed.

Goal 5, the protection of Bodega Harbor, involves REC-1, REC-2 and COLD beneficial uses among others and is related to Goals 1 and 3. Goal 8, coordination of water rights, is related to Goals 1, 2, 3, and 4 by affecting surface and ground water quality and supply. Therefore, by protecting the beneficial uses which demand the highest quality waters, most components supporting the other beneficial uses also will be protected.

GOAL 1: Protect surface water uses MUN, REC-1, REC-2
High quality water is required to protect these primary beneficial uses. The Regional Water Board recognizes that protecting and enhancing water quality for the primary beneficial uses will generally maintain and protect all other uses.

The Russian River must be protected at a level to maintain the municipal and domestic supply systems for over half a million users. These water supply systems include Ukiah, Hopland, Cloverdale, Healdsburg, Windsor, Santa Rosa and southern Sonoma/northern Marin counties, Guerneville and numerous other communities.

The Basin Plan requires that municipal discharges to the Russian River and its tributaries be improved to tertiary levels that are pathogen free. The cities of Santa Rosa, Ukiah, and Windsor and the Russian River County Sanitation District meet the terms of the Basin Plan provision for tertiary effluent. The City of Healdsburg, which is under a Cease and Desist order, discharges secondary effluent to a former gravel pit in the flood plain that was overtopped during the winters of 1994-95, and 1996-97. The Regional Water Board has filed litigation against Healdsburg on the adequacy of the environmental documents for the long term solution.

The City of Santa Rosa, which is under a Cease and Desist Order, has prepared an EIR and is exploring alternatives for their long-range plans for wastewater disposal. Russian River County Sanitation District, also under a Cease and Desist Order, meets advanced treatment requirements, however, bypasses of partially treated wastewater routinely occur with the frequent flooding conditions experienced in the lower Russian River.

The unincorporated communities of Forestville and Graton, which are under time schedules, and Occidental, which is under a Cease and Desist Order, discharge secondarily treated wastewater to tributaries of the Russian River. The time schedules for these communities require improvement of effluent quality to an advanced degree as soon as practicable. Each community is in the early planning stages of projects to meet the terms of their permits. Forestville and Graton are connected by a pipeline. However, each community could pursue independent solutions. Alternatives include complete elimination of the discharge of treated effluent to surface waters by use of additional storage and reclamation; or, upgrade to tertiary level waste treatment. Occidental may build additional storage/irrigation facilities or abandon its facility and transport wastewater to another treatment and disposal facility.

Western Sonoma County areas, Monte Rio, and Camp Meeker have high septic system failure rates. The Health Department and County Board of Supervisors recognize these septic systems as health hazards. The extent to which these systems impact recreational uses in the Russian River is not known. However, the most serious failures probably occur during the winter when body contact recreation season is minimal. The County of Sonoma is aggressively pursuing funding to eliminate chronic septic tank failures. Planning is moving ahead with strong local support; however, funding is a realistic limiting factor in most of the communities. Projects have been included in the State's highly

competitive Small Community Grants Program. Monte Rio has completed the environmental review process and has submitted an application with the Regional Water Board in order to construct an area-wide wastewater collection, treatment and disposal system.

General storm water permits regulate industrial and construction storm water discharges. This is a relatively new regulatory area within the last decade with limited funding resources for permit compliance and assessment. Regional Water Board staff is inspecting a limited number of permitees, and has taken enforcement actions against significant violators.

Timber harvesting in the WMA accounts for less than 5% of the volume of timber harvested in the North Coast Region. Public concerns have been expressed for localized water quality impacts from timber harvesting in urban areas. Specific concerns are in the Willow Creek drainage and smaller tributaries to the lower Russian River area near Guerneville. Staff reviews timber harvest plans in coordination with the California Department of Forestry for potential water quality impacts.

Rural residential roads are a source of sediment in the WMA. Multiple owners, without a unified responsibility for maintenance and prevention of erosion, control these roads. Staff enforces Basin Plan Prohibitions for the discharge of sediment from the construction of individual roads.

Pesticide and fertilizer applications in the WMA are a public concern for domestic and aquatic uses, however water quality sampling has not found pesticides in the water or sediments. The sporadic detection of solvents, likely of industrial origin, in Santa Rosa Creek is a continuing Regional Water Board concern.

Regional Board staff, in response to the TMDL for Stemple Creek and preliminary findings of the Storm water permit, have required the County of Sonoma to investigate the impacts of the Sonoma County Landfill on Stemple Creek. In addition, a ground water investigation is ongoing to determine if contaminated ground water is leaving the landfill. The county also is proposing expansion the landfill. An EIR is currently under consideration and Regional Board staff is reviewing a Report of Waste Discharge (Joint Technical Document). New waste discharge requirements were adopted in early 2000.

Some of the above point source discharge issues also pertain to nonpoint source discharges, for instance the concern about bacterial quality at popular swimming beaches. In addition, storm water runoff from agricultural, urban, industrial, and construction sites contributes episodic and unquantified loads of sediment, metals, organic chemicals, nutrients, and organic matter to waterbodies in the WMA. Erosion from grazing impacted lands may affect the Salmon Creek watershed. Areas of concern include the north side upstream of the Carmet Water District water supply, and the mid-section of the watershed upstream from the community of Bodega. Abandoned mercury mines may affect water quality in the Big Sulfur Creek and Fife Creek watersheds. The Bay Protection and Toxic Cleanup Program sampling results indicate complex organic chemical contamination in sediments at two locations in Bodega Harbor. Persistent bacterial contamination of coastal waters in the Campbell Cove area of Bodega Bay is also a concern that is being investigated.

Point Source Issues

Current Activities

Current activities are funded with resources that grow increasingly limited. These continued regulatory activities are necessary core elements for maintaining sound water quality protection in the basin, and include:

- Continue to track compliance with time schedules in NPDES Permits and enforcement orders
- Keep all Russian River municipal dischargers on schedule for advanced wastewater treatment.
- Maintain bacterial sampling at public water contact recreation areas.
- Maintain the sampling regimen at the four long-term historical water quality monitoring stations to provide long-term monitoring data for the Russian River mainstem under SWAMP. Evaluate monitoring sites in other streams in the WMA and schedule monitoring under the SWAMP rotating schedule for FY 2004-05.
- Propose modified Basin Plan water quality objectives for Regional Board consideration to address protection of FESA listed salmonid fish.
- Provide assistance/coordination to Sonoma County Water Agency for the development of an early warning system for the mainstem Russian River.
- Evaluate the cumulative impacts of flow changes proposed as alternatives in the Sonoma County Water Agency/US Army Corps FESA Section 7 consultation and of waste discharges using the Russian River water quality model and other methods.
- Continue to regulate industrial and construction storm water dischargers in the Roseland Creek watershed and other watersheds.
- Renew the municipal storm water permit for the Santa Rosa area.

Additional Needs

There are additional core regulatory elements that are unfunded. Consequently, Regional Water Board staff is responding to complaints and spills on certain dischargers after a problem has been created, rather than prevention through regulatory oversight and inspections. The following details work that could be met with additional staffing in the WMA.

- Continue and also seek additional staffing to work with the City of Santa Rosa and their co-permittees to fully implement their Municipal Storm Water Permit.
- Inspect all regulated facilities in accordance with the State Administrative Procedures manual.
- Identify any point source discharges of hazardous or toxic substances to Santa Rosa Creek and mitigate.
- Target subwatersheds to assess filing status and compliance with industrial and construction storm water permits.
- Pursue enforcement actions on non-filers for industrial and construction storm water permits.
- Provide comment on environmental documents, modify permits, and generally promote concerns for maintaining stream channel form and function.
- Assess spill contingency planning and compliance on aboveground storage tanks.
- Coordinate activities with local agencies and groups.
- Pursue post construction storm water management to improve water quality and flood control.

Nonpoint Source Issues

Current Activities

- Use education, outreach and enforcement of Basin Plan provisions to reduce or eliminate nonpoint source discharges from hillside vineyard development and other agricultural operations.

- Expand the outreach and enforcement activities on hillside vineyards including further development of interagency coordination and cooperation on addressing erosion problems. Blatant violations of the Basin Plan are addressed through increased enforcement.
- Continue to work with animal facility operations to develop and implement improved animal waste management practices.
- Maintain the effective individual on-site waste disposal system program described in the Basin Plan and promote reasonable resolution of localized problems.
- Support the Sonoma County's hillside vineyard ordinance that addresses the issue of erosion and sediment discharges from hillside vineyard development.
- Support the Marin County RCD and Southern Sonoma County RCD and Natural Resource Conservation Service efforts to address erosion and mass wasting (landslides) sediment issues in the Stemple Creek watershed with education, outreach and grant assistance
- Continue to review timber harvest operations in coordination with the California Department of Forestry for control of sediment discharges.
- Monitoring for compliance with water quality objectives associated with timberland activities in key areas (e.g., Jenner Gulch).
- Continue the restoration of portions of Santa Rosa Creek.
- Monitor for MTBE in Lake Sonoma and Lake Mendocino.
- Screen for xenobiotic estrogens by using vitellogenin testing of fish in FY 2001-02 under SWAMP. Monitor for toxic chemicals through coordination with the SWAMP rotation in FY 2004-05.

Additional Needs

- Volunteer monitoring should receive additional attention.
- Promote additional outreach and enforcement where appropriate for road maintenance and sediment control, agricultural operations, implementation of best management practices and pollution prevention at commercial and industrial facilities, and new development of hillside vineyards.
- Seek funding for additional assessment of semi volatile, volatile, and metal pollutants in Laguna de Santa Rosa tributaries.

GOAL 2: Protect and maintain ground water quality and quantity for the beneficial uses of domestic, municipal, agricultural, and industrial water supply uses.

The discharges to ground water from underground and above ground tanks, wrecking yards, maintenance yards, septic systems, landfills, herbicide and pesticides applications, dairies, illegal disposal sites, and other agricultural and industrial facilities have resulted in contamination and degradation of ground water. Included are the possible impacts of the Sonoma County Landfill on the ground water in the Stemple Creek watershed. Other priority locations include the West College Avenue at Clover Drive neighborhood, McMinn Superfund area, Santa Rosa Avenue area, older residential developments in the North Dutton Avenue/Freeway well area, and areas near Sebastopol wells #4 and #5.

Sonoma County relies heavily on ground water as a domestic supply, including sole-source aquifer for the City of Sebastopol and principal reliance on ground water for the City of Rohnert Park. Santa Rosa uses ground water as stand-by and to supplement diversion from the Russian River underflow, and is planning to augment year-round supplies by additional ground water usage.

The extent to which some ground water contamination areas affect surface waters is not well known, but several toxic sites are documented as affecting nearby streams with contaminated ground water (e.g., Roseland Creek in south Santa Rosa, Santa Rosa Creek in the downtown Santa Rosa area, Foss Creek in Healdsburg, and Porterville Creek in Cloverdale).

The City of Santa Rosa has prepared an EIR and is exploring alternatives for their long-range plans for wastewater disposal. That plan should be completed in 2002 requiring additional staff work to evaluate potential impacts to ground water.

The western Sonoma County areas of Monte Rio, and Camp Meeker have high septic system failure rates. Discharges currently not under permit or other regulation should be eliminated, and nitrate and other pollutant discharges to ground water assessed.

Confined animal operations (dairies, feed lots, horse paddocks) and other animal agricultural operations (rangeland grazing) contribute nitrogen, phosphorus, organic matter, and sediment loads to some watersheds, most notably the Laguna de Santa Rosa, Stemple Creek, and Americano Creek.

Point Source Issues

Current Activities

- Continue with pollution prevention activities to promote the continuing development and application of best management practices for storage, treatment, and disposal of hazardous substances, storm water pollution prevention controls, solid waste, dairy waste, municipal waste water, agricultural and domestic and industrial wastes.
- Continue to address the sites that have the highest ground water contamination, greatest risk to the beneficial ground water uses and greatest risk to drinking water sources.
- Assist City of Sebastopol in a source water protection program and continue efforts at source control for the ground water contaminated with solvents and petroleum products.
- Coordinate with local agencies to protect ground water, assess effects of gravel mining and other land use activities on local water tables, and assess impacts of industrial and agricultural chemicals in the ground water.

Additional Needs

- Expand source water protection programs to areas beyond Sebastopol.
- Evaluate local program efforts for eliminating Class V injection wells and unpermitted discharges to the subsurface. Promote eliminating Class V wells and coordinate with US EPA on identifying locations of other Class V wells in the WMA.
- Provide needed enforcement follow-up on unpermitted discharges.
- Expand cleanup efforts to address Priority II and III SLIC dischargers. Expand assessment program for determining sources of polluted well contamination.
- Pursue innovative approaches to funding ground water and volunteer monitoring efforts.

Nonpoint Source Issues

Current Activities

- Maintain the Regional Water Board and County of Sonoma's and County of Mendocino's individual waste disposal system programs and promote reasonable resolution of localized issues.

Additional Needs

- Promote the continuing development and application of best management practices for storage, treatment, and disposal of hazardous substances, storm water runoff, solid waste, dairy waste, municipal waste water, agricultural and industrial wastes.
- Coordinate with local agencies to protect ground water, assess effects of gravel mining and other land use activities on local water tables, and assess impacts of industrial and agricultural chemicals in the ground water.
- Coordinate with other agencies and groups regarding ground water issues and funding.
- Establish a monitoring network in high risk/high ground water use areas.
- Determine source of pollutant discharges from ground water-to-surface water pathway.
- Assess nonpoint source impacts of Sonoma County Central Landfill on Stemple Creek.

GOAL 3: Protect/enhance coldwater fisheries

The historic anadromous fishery is in decline due to a combination of factors, including dams, siltation, loss of habitat, low tributary flows, high tributary temperatures, and other factors. The condition of water resources with respect to maintaining and enhancing those uses is being addressed by other agencies, however we share responsibility for determining the level of attainment.

The Russian River Watershed Council (RRWC), in partnership with the State Department of Conservation and the US Army Corps of Engineers, is moving forward with projects aimed at improving overall watershed health. One such project is the development of an interactive information management system. This system will be developed in close coordination with the National Marine Fisheries Service's GIS project and a larger information gathering and management effort proposed by the Sonoma County Water Agency. Other elements of education, information sharing, and policy suggestions are being explored by subcommittees of the RRWC.

Activities to improve conditions and the fishery must be promoted, and water quality must support that use. The following issues are in addition to or provide more detail than those identified for Goal 1, recognizing that actions to achieve Goal 1 will address the same issues for coldwater fish.

Coho salmon (*Oncorhynchus kisutch*), chinook salmon (*Oncorhynchus tshawytscha*), and steelhead trout (*Oncorhynchus mykiss*) are listed under the federal Endangered Species Act as threatened in the WMA. Both coho and steelhead are found in some tributaries of the Russian River and in some coastal streams in the Bodega Hydrologic Unit. Chinook are documented in the Russian River.

The Regional Water Board, under contract to the Sonoma County Water Agency, has reviewed its water quality objectives for the Russian River watershed with regard to listed salmonid species. We are proposing changes to objectives for water temperature, dissolved oxygen, sediment, and aluminum, and will take those changes, as well as implementation plans, to the Regional Board for their consideration in early 2002 and 2003.

Xenobiotic estrogens (organic chemicals that mimic, suppress, or enhance estrogen activity in animals) may affect the reproductive health of the anadromous fishes in the Russian River watershed. We will begin screening for those effects under SWAMP in FY 2001-02.

Hillslope erosion and subsequent sedimentation of coldwater spawning streams in the WMA has been documented for a number of tributaries in the Russian River watershed, as well as other coastal streams in the WMA. Erosion rates are high in the Bodega Hydrologic Unit. The Marin County and Southern Sonoma County RCDs are addressing issues associated with erosion and mass wasting (landslides) in Stemple Creek. Additional concerns have been voiced regarding grazing impacts in the Salmon Creek watershed on the north side upstream of the Carmet Water District water supply. County road failures, especially associated with stream and drainage crossings, can contribute to sedimentation of local streams.

Confined animal operations (dairies, feed lots, horse paddocks) and other animal agricultural operations (rangeland grazing) contribute nitrogen, phosphorus, organic matter, and sediment loads to some watersheds, most notably the Laguna de Santa Rosa, Stemple Creek, and Americano Creek. Funding for assessment and monitoring has diminished seriously over the last decade.

The WMA contains populations of the federally endangered freshwater shrimp, *Syncaris pacifica*, and tidewater goby, *Eucyclogobius newberryi* is found in the esteros. The extensive wetlands areas once found in the WMA have diminished significantly and efforts are underway to restore some of the wetlands values in the area. There is a need for continued planning and coordination of stream restoration projects.

Conversion of mixed hardwood and forested slopes to hillside vineyards contributes sediment to the tributaries of the Russian River, where fish rearing and spawning occur. Riparian habitat is reduced to accommodate commercial vineyard production and can elevate stream temperatures and reduce sediment metering functions of the riparian zone. Resultant impacts include changes in stream channels as well as direct sedimentation of the streambed. Increased sedimentation in some tributaries is causing widening and shallowing of the stream channel, increasing bank erosion and exacerbating water temperature problems.

Timber harvesting in the WMA accounts for less than 5% of the volume of timber harvested in the North Coast Region. Public concerns have been expressed for localized water quality impacts from timber harvesting in urban areas. Specific concerns are in Willow Creek drainage and smaller tributaries to the lower Russian River area near Guerneville. Staff reviews timber harvest plans in coordination with the California Department of Forestry for potential water quality impacts.

Rural residential roads are a source of sediment in the WMA. Multiple owners without a unified responsibility to maintain the roads from erosion of surface soils control these roads. Staff enforces Basin Plan Prohibitions for the discharge of sediment from construction of individual roads.

Maintenance of flows through the Potter Valley powerhouse and diversion, an interbasin transfer of water from the Eel River watershed into the Russian River watershed, is threatened by the fish restoration efforts in the Eel River watershed aimed at reclaiming some of the diverted water and improving conditions in the Eel River.

The State Division of Water Rights has designated tributaries to the Russian River as fully appropriated for the period April 1 through December 14. A report and proposed process for handling new permits has been developed. Concern has been expressed regarding excessive summer diversions and temporary diversion structures impacting salmonid resources in

Russian River tributaries as well as maintaining and protecting coldwater recharge areas and springs in the tributaries. Future urban and agricultural development in the Russian River watershed should be evaluated in light of diminishing water resources, including potential decreases from the Eel River diversion.

Channel down-cutting in the middle reach from entrapment of sediments behind dams and removal of gravel from the streambed, the danger of off-channel gravel pits being captured by the river, and loss of riparian corridor were identified by a Coastal Conservancy study of the river.

Point Source Issues

Point source issues are addressed in Goals 1 and 2.

Nonpoint Source Issues

Current Activities

- Under contract to the Sonoma County Water Agency, we evaluated the adequacy of water quality objectives and the current regulatory structure in attaining federal Endangered Species Act requirements for threatened salmonids. Included in the analysis was an evaluation of existing data for compliance with water quality objectives related to fisheries.
- We are proposing changes to water quality objectives for water temperature, dissolved oxygen, sediment, and aluminum, and will take those changes, as well as implementation plans, to the Regional Board for their consideration in early 2002 and 2003.
- Under the SCWA contract we also established monitoring protocols to detect any changes in water quality.
- Develop a database of mitigation and enhancement activities that could influence the changes in water quality objectives for listed and unlisted species, and enhance the quality of surface water for the benefit of listed and unlisted species.
- The Russian River water quality model is being refined under the SCWA contract and used in scenario analysis of flow changes associated with the Section 7 consultation. It will be used for evaluating discharge effects on water quality as well.
- The SCWA has proposed a watershed data gathering, analysis, and information system for Sonoma and Marin counties. That system will include the Russian/Bodega WMA and play a significant role in FESA-listed salmonid recovery planning.
- Continue to review timber harvest operations.
- Continue to work with the dairy industry to promote management practices that protect water quality.
- Support the Marin and Southern Sonoma County RCDs erosion control efforts in the Stemple Creek watershed.
- Maintain current involvement in the Russian River Watershed Council.
- Continue outreach and interagency coordination and cooperation to the grape growing industry to reduce impacts of vineyards on water resources, especially the anadromous fishery.
- Proceed with review of the Fish Friendly Farming certification program for grape growers, evaluating it for legal specificity and to formally recognize the program in 2002.
- Continue to coordinate with local agencies/groups in the support of local non-regulatory, cooperative efforts for erosion/sedimentation controls.

- Continue to coordinate with the Division of Water Rights regarding water supply issues and the decline of summer flows.
- Continue to work with the SCWA on channel maintenance activities.

Additional Needs

- Promote additional outreach and enforcement where appropriate for improved road maintenance and sediment control on rural residential roads.
- Continue to expand efforts to conduct additional outreach and enforcement to promote control of soil erosion and riparian habitat reduction by conversion of hardwood and coniferous forest to hillside vineyard.
- Promote habitat/riparian restoration in existing agricultural areas.
- Promote restoration, enhancement, and maintenance of riparian areas through grant funding, public education and outreach, and coordination and assistance to other agencies and groups.
- Implement and enforce best management practices for nonpoint source regulation; react to complaints and conduct enforcement.
- Evaluate the sediment data collected by the US Geological Survey for the Russian River with respect to erosion and sedimentation issues and the anadromous fishery.
- Evaluate and pursue methods for evaluating sediment sources (e.g., satellite imagery, aerial photography).
- Pursue innovative approaches to funding and volunteer monitoring.
- Monitor for toxic chemicals in water, sediment, and tissue.
- Coordinate with California Department of Fish and Game in their salmonid restoration activities.
- Increase coordination with the local planning agencies.
- Promote awareness of the effects of increased erosion on channel morphology.
- Promote development and adoption of a county grading ordinance.

GOAL 4: Protect/enhance warmwater fisheries

The protection and enhancement of warm water fisheries and ecosystems (beneficial use WARM) also is important in the Russian/Bodega WMA.

The issues and actions overlap significantly with those for coldwater habitat and are not restated here.

GOAL 5: Protect aquatic life and public health in Bodega Harbor

Bodega Harbor supports the following beneficial uses: REC-1, REC-2, COMM, COLD, MAR, WILD, MIGR, SPWN, AND SHELL. The local sewage treatment plant, marina and dry dock operations, and storm water runoff from agricultural, urban, and industrial sites threaten those uses to varying degrees.

<u>Point Source Issues</u>

Current Activities

- Inspect the marina and dry dock operations, and the dredge-tailing site.
- Inspect and update Waste Discharge Requirements for Bodega Harbor Wastewater Treatment Plant.
- Work with the Army Corps of Engineers on their Bodega Harbor dredging proposal.

Additional Needs

- Review and inspect selected industrial and construction storm water permit holders.

Nonpoint Source Issues

Current Activities

- Continue working with individual agricultural operations to improve management practices**.**
- Continue cooperative investigations with the Sonoma County Department of Environmental Health and the Bodega Marine Laboratory regarding high bacterial levels at Campbell Cove and Doran Park beaches. Look into DNA analysis to identify source species.

Additional Needs

- Evaluate the extent of complex organic contamination in sediments in Bodega Harbor.
- Determine the need for cleanup and begin cleanup action.
- Develop a monitoring program for the Bay, including water, sediment, and tissue monitoring.
- Eliminate discharges currently not under permit or other regulation.
- Determine sources and extent of sedimentation in Cheney Gulch and refer concern to Sonoma County Planning Department or other responsible agency.
- Work with agricultural, and other runoff discharges, primarily through grant-funded projects, volunteer monitoring coordination, and public education and outreach; conduct enforcement.
- Improve agency coordination regarding runoff issues and marina and dry dock operations; encourage the pursuit of grants.

GOAL 6: Objectives attainment in the Laguna de Santa Rosa

High ammonia concentrations threaten aquatic life in the Laguna, as do frequent events of low dissolved oxygen. The 1995 TMDL and a waste reduction strategy (WRS) require revision to fine-tune the estimates and goals. Implementation monitoring documents an improvement in nitrogen concentrations to the point of meeting the interim instream goals for nitrogen. Dissolved oxygen appears to be largely dependent on internal processes in the Laguna and requires further investigation to support revision of the TMDL and strategy.

Storm water discharges to the Laguna watershed are addressed under the existing municipal NPDES permit and individual general storm water permits. Goals for reductions of nitrogen and oxygen demanding substances are included in the TMDL. The City of Santa Rosa and County of Sonoma have instituted measures to meet those goals. Ammonia goals for the Laguna were met ahead of schedule, however dissolved oxygen continues to be a problem.

Point Source Issues

Current Activities

- Maintain NPDES permit oversight for the dischargers to the Laguna.

Additional Needs

- Evaluate load estimates for point source discharges.
- Revise load estimates and the WRS to more accurately reflect conditions in the Laguna and status of dischargers.

Nonpoint Source Issues

Current Activities

- Continue to implement the plan for reduction of nutrient and organic matter loading; maintain liaison with RCDs and Sonoma-Marin Animal Waste Committee.
- Continue to promote restoration and enhancement of riparian areas.
- Expand the hillside vineyard outreach program to educate vineyard landowners of best management practices and conduct enforcement activities to address erosion from hillside vineyards.

Additional Needs

- Coordinate activities with other agencies and groups, using cooperative, non-regulatory programs.
- Work cooperatively with agricultural and other runoff discharges; conduct enforcement.
- Encourage the maintenance of riparian vegetation along the banks of streams.
- Revise load estimates and the WRS to more accurately reflect conditions in the Laguna and status of nonpoint source loads.
- Continue to expand effort to identify erosion and sediment sources and potential sources related to new development of hillside vineyards
- Expand outreach on best management practices for hillside vineyards, including further development of interagency coordination and cooperation on addressing erosion problems.

GOAL 7: Stemple and Americano Creeks Waste Reduction Strategies

This goal provides for the continued implementation of a waste reduction strategy for the Stemple Creek watershed to meet dissolved oxygen and ammonia objectives. It will be used as a model for Americano Creek in the future. For that reason, only the Stemple Creek activities are described below.

Grazing, nonpoint source impacts from the Sonoma County landfill, and other erosion processes impact Stemple Creek and the Estero de San Antonio to varying and largely unquantified degrees. The WRS addresses sediment and nutrient issues, but requires continued involvement and additional investigations and outreach. Continued oversight of the TMDL and attainment strategy is needed. The Sonoma County Landfill near the headwaters of Stemple Creek is under evaluation in relation to its contribution of contaminants of concern.

Point Source Issues

Current Activities

- Continue regulatory oversight of the Sonoma County Landfill.
- Continue investigation of the US Coast Guard Petaluma Training Facility Wastewater Treatment and Disposal Facilities and wet weather operational problems.

Additional Needs

- Investigate the impacts to ground water by petroleum products and other toxic materials from leaky underground tanks and any other sources.
- Work with the US Coast Guard Petaluma Training Facility on leaky underground tanks and other sources.
- Work with dairies on strategies for reducing water quality impacts from these operations.

Nonpoint Source Issues

Current Activities

- Continue on-going data analysis and water quality data collection.
- Continue to encourage the maintenance of riparian vegetation along the banks of streams.

Additional Needs

- Coordinate with the RCDs on public participation and in compiling land use information to support a watershed runoff model.
- Implement and enforce best management practices for nonpoint sources, including work with agricultural, and other runoff discharges; conduct enforcement.
- Investigate the nonpoint source impacts of the Sonoma County Landfill on the surface water and ground water in the Stemple Creek watershed.

GOAL 8: Water Rights Coordination

Water use in the WMA has increased over the years, with competing demands among agriculture, domestic, and wildlife/fishery uses creating conflict over availability. Concern has been expressed regarding excessive summer diversions and temporary diversion structures impacting salmonid resources in Russian River tributaries. We are increasing our coordination with the state Division of Water Rights and reviewing water rights permits for water quality concerns. The issues associated with water diversions are covered under GOAL 3.

GOAL 9: Assessment of Salmon Creek and other tributaries

Little is known about the water quality condition of the coastal tributaries between the Russian River to the north and Americano Creek to the south. Concerns have been raised by the public regarding sedimentation, water temperature, nutrients, and salmonid habitat values. This goal provides for water quality monitoring and water quality problem assessment in Salmon Creek and other coastal tributaries.

Current Activities

- Actions associated with this goal are contained in Goal 3.

Additional Needs

- SWAMP is scheduled for FY 2004-05 to perform water quality sampling and cursory watershed assessments for Salmon Creek and Cheney Gulch as well as other coastal tributaries south of the Russian River

Other More General Additional Needs for the Russian/Bodega WMA

1. Identify ways to speed up permit process with other agencies
2. Seek funding for additional needs
3. Promote incentives for landowners
4. Use focus groups to address specific issues or geographic areas
5. Maintain a database of projects and actions, possibly with a GIS component
6. Promote grants for improved watershed health

BUDGET

The budgeting process associated with the watershed planning process includes an itemization of activities by categories that are standardized statewide. As such, it doesn't specifically detail all individual actions in a WMA as laid out in the *Water Quality Goals and Actions* section. However, it is a representation of the current knowledge of funding levels across a wide spectrum of categories. The actual individual actions that are performed in a WMA are within those categories and will be specifically identified as we proceed through the planning process. We will attempt to fund the highest priority actions as identified in each WMA to the extent funding constraints allow that, and will pursue additional funding for those actions we are currently unable to address.

Appendix D contains information specific to the nonpoint source program.

APPENDIX 2.1-A

Partial list of agencies and groups in the Russian/Bodega WMA

United States
Environmental Protection Agency
Army Corps of Engineers
This agency has constructed and operates the two major dams on the Russian River: Lake Mendocino on the East Fork at Ukiah and Lake Sonoma on Dry Creek near Healdsburg. The Army Corps is also responsible for administering the CWA section 404 permits on dredge and fill activities. They are in the early stages of a reconnaissance survey (initiated in late 1996) of the Russian River basin preparatory to a study of potential actions to improve aquatic and geomorphic functions.
Geological Survey
National Biological Service
Fish and Wildlife Service
National Marine Fisheries Service
Natural Resources Conservation Service

Native American
Pomo Basket Weavers
Yakima (need correct spelling)

California State
California Environmental Protection Agency
Department of Fish and Game
This agency is charged with the protection and enhancement of fish and wildlife resources in the State. In the WMA, the department has active programs for fishery enhancement and protection.
Department of Health Services
Department of Pesticide Regulation
Office of Environmental Health and Hazard Assessment
Department of Toxic Substance Control
Department of Water Resources
California Coastal Conservancy
This agency began a Russian River enhancement program in 1991, involving two Technical Advisory Committees (Sonoma and Mendocino Counties) to identify issues on the mainstem and develop alternatives to enhance public access and the resource values of the mainstem Russian River. Their outreach and public participation has been extensive.

UC Agricultural Extension
Hopland Research and Extension Center

Sonoma County
Water Agency

This agency supplies domestic water to southern Sonoma and northern Marin counties from wells located in the underflow of the Russian River in the Wohler and Mirabel areas. They have priority water rights on lakes Mendocino and Sonoma and are required to meet minimum flows in the Russian River mainstem based on yearly water yield categories (dry, normal, wet, etc.). The agency is beginning a program to install an early warning network of remote monitoring station to alert them to possible contamination of the water supply. They are currently involved in a Russian River watershed assessment. They are also responsible for the county's wastewater treatment systems.

Planning Department

This local agency is charged with land use planning in Sonoma County. Beyond development and maintenance of the county General Plan, they are involved in the development and execution of an Aggregate Management Resources Plan to address gravel extraction issues in the WMA. The General Plan EIR contained specific reference to erosion control measures for the county.

Department of Environmental Health
Agricultural Commissioner's Office
Redevelopment Agency
Economic Development Board

Mendocino County
Water Agency

This agency is actively involved in a water supply, water quality, and channel structure issues in the Mendocino County portion of the Russian River watershed. They are finishing a CWA section 205(j) project to develop a gravel management plan for the Russian River in Mendocino County.

Planning Department
Department of Environmental Health
Agricultural Commissioner's Office

Local Agencies
City agencies
North Marin Water District
Resource Conservation Districts
Mendocino County RCD
Sotoyome RCD

This RCD is spear-heading a number of efforts aimed at watershed stewardship and restoration of Russian River tributaries, including interagency coordination, the Northwest Emergency Assistance Program (NEAP) for fishery restoration activities, Clean Water Act section 205(j) and 319(h) grant projects for erosion control, watershed stewardship, volunteer monitoring, and fishery restoration.

Goldridge RCD
Southern Sonoma County RCD
Marin County RCD
Mendocino Water Supply and Flood Control District
local water districts - numerous, to be compiled later
city planning departments
Santa Rosa Waterways Plan

Santa Rosa Creek restoration activities
city public works departments
Eel/Russian Commission

This commission was formed to coordinate water resources issues in the two basins in light of their sharing common headwaters with the Eel-to-Russian interbasin diversion.

Public Interest Groups
Green Valley Creek Watershed Advisory Group (WAG)
Laguna Foundation

This nonprofit organization is committed to protection and enhancement of the wetlands and other resource values of the Laguna de Santa Rosa. Several areas in the Laguna have been preserved or restored due to their involvement.

Laguna Coordinated Resource Management and Planning (CRMP) Task Force

This facilitated effort was started by the City of Santa Rosa and the Sonoma County Water Agency in 1994 to identify and help resolve issues in the Laguna de Santa Rosa watershed. Membership is extensive, including local, state and federal agencies, public interest groups, individual landowners, and interested persons. The Task Force completed a management plan to assist in protecting and improving the resources in the watershed in early 1995.

Farm Bureau
Western United Dairymen
United Winegrowers
Stemple Creek WAG
Russian River Watershed Protection Committee
Friends of the Russian River
Russian River Alliance
Vernal Pool Task Force
Environmental Resource Council
Sonoma County Taxpayers Association
Trout Unlimited
Salmon Unlimited
Citizens for Cloverdale
Committee for Sensible Reuse
Surfrider Foundation
Citizens Cleanup Committee
Southwest Area 2000
Roseland Action
Russian River Watershed Council
West College Avenue Citizens Group

APPENDIX 2.1-B

Monitoring and assessment needs for the Russian/Bodega WMA.

The prioritized monitoring and assessment activities below support testing hypotheses about support of beneficial uses MUN, REC1, COLD, RARE or provide assessment information essential for program implementation. They are currently unfunded.

The estimates are Regional Water Board needs on a per year basis with desired fiscal year implementations identified.

1. **Coordinated Monitoring and Assessment - $40,000 (0.3PY + $10,000) - FY 02-03 - ongoing**
   A consortium of monitoring agencies and groups will be established to coordinate discharger self-monitoring, receiving water monitoring, storm water monitoring, fish habitat assessments, flow monitoring, existing long-term water quality stations (4), agricultural chemical use, and special investigations like xenobiotic estrogen screening. Regional Water Board permits will be coordinated to provide the most ecologically significant, efficient, and effective monitoring strategy for the WMA. . It is hoped that the efforts of the NMFS, RRWC, and SCWA to develop information systems will promote coordination. We have set up a temperature monitoring consortium among agencies, but need to expand that to other interests and water quality parameters.

2. **TMDL Assessments - $50,000 (0.3PY + $20,000 lab) - FY 02-04**
   Continued assessment of water quality, especially nutrient and dissolved oxygen relationships is required by the Laguna and Stemple TMDL waste reduction strategies. The City of Santa Rosa and some local groups are performing chemical monitoring in both streams and the SCWA will deliver some of the analysis, but the Regional Water Board must continue to oversee the program and investigate nutrient and dissolved oxygen problems.

3. **Ocean tributary assessments - $40,000 (0.2 PY + $10,000 lab) - FY 04-05**
   Water quality assessments of streams tributary to the ocean excluding the Russian River are needed to determine general water quality and to serve as the basis for addressing problems associated with land uses in the watersheds, including Salmon Creek, Cheney Gulch, Americano Creek. We intend to address this with the SWAMP rotation in FY 04-05.

4. **Spatial Data Assessment - $45,000 (0.4 PY) - FY 03-04, 04-05**
   A number of dischargers and programs are collecting surface and ground water information in the WMA. Spatial assessment of those data would provide a picture of problems associated with groundwater and storm drain contamination and groundwater to surface water connections, as well as providing direction for developing a coordinated multi-agency approach to monitoring and assessment in the WMA.

5. **Sedimentation Assessment - $75,000 (0.5 PY + $20,000) - FY 07-08**
   The Russian River watershed is 303(d) listed for sedimentation. Further assessment of existing data and collection of new information is needed to develop strategies (TMDLs) for reducing erosion and sedimentation of tributary spawning and rearing streams. The NMFS, RRWC, and SCWA efforts should begin to address watershed assessment needs from a spatial scale, assisting in the assessment of sediment sources.

6. **Sediment TMDL Development - $750,000 (2 PY + $500,000) - FY 09-10**

Once assessment is completed a TMDL will need to be developed to identify sources and estimate loading from sediment sources in the watershed.

7. **Sediment TMDL Implementation - $160,000 (1 PY + $50,000) - FY 05-06 - ongoing**
TMDL implementation will require development and adoption of a Basin Plan amendment, estimated to take two years to develop and another year for adoption. Continued implementation will require constant oversight and monitoring for the foreseeable future (at least 20 years).

8. **Chemicals in POTWs - $52,000 (0.2 PY + $30,000) - FY 01-02**
Petroleum products, including solvents, MTBE, and gasoline, as well as pesticides should be sampled in the influent and effluent of POTWs. MTBE, gasoline components and pesticides were sampled in 2000. Additional sampling is planned for FY 01-02.

9. **Bodega Harbor Sediment Contamination - $155,000 (0.5 PY + $100,000)**
Sources of contaminants in Bodega Harbor sediments identified with the Bay Protection and Toxic Cleanup Program need additional assessment and focused cleanup efforts.

10. **Ground Water Quality Network.**
Water quality monitoring of ground water is needed for toxic chemicals at stations throughout the WMA.

Surface Water Monitoring Program

Water quality monitoring efforts will be focused on maintaining four long-term monitoring stations in the Russian River watershed. This includes TMDL confirmation monitoring in the Laguna de Santa Rosa, and expanding the temperature monitoring consortium for the watershed to include other water quality parameters. Those activities will be funded through the Surface Water Monitoring Program (SWAMP). Activities also include ground water quality assessment and public participation.

Additional needs in the smaller watersheds in the Bodega Unit including monitoring in the Stemple Creek watershed, and monitoring and assessment in the Americano Creek, Cheney Gulch, and Salmon Creek watersheds. These watersheds will be addressed in the SWAMP rotation in FY 2004-05. Additional options we will consider for improved and enhanced monitoring include the establishment of long-term photo point monitoring records, fostering voluntary monitoring by individuals and watershed groups; reviewing the USEPA Rapid Bioassessment Protocol, providing spatial analysis of surface and ground water data, and increased coordination with local universities and the UC Extension Service for education and outreach. In addition, domestic well sampling in the McMinn Superfund area for the next five years has been funded by the Sonoma County Water Agency as part of the Roseland Action Plan.

Russian River Hydrologic Unit (114) - FY 2001-02 Monitoring Activities

Station (Type) [1] HUC	Beneficial Use(s)	Monitoring Objectives [2]	Freq [3]	Category(s)	Indicator(s) [4]
RRGRNV (P) 114.11 (Russian River at Guerneville)	MUN, REC1, REC2, WARM, COLD, SPWN, MIGR, WILD,	1,2,3,4,9,10,11, 12,13	5 C 5 O	Contaminant Exposure, Biological Response, Pollutant Exposure, Habitat	Inorganic and Organic Water Chemistry, Chl-a, Nutrients, Total Organic Carbon, Dissolved Oxygen, Water Temperature, Vitellogenin

Russian River Hydrologic Unit (114) - FY 2001-02 Monitoring Activities					
Station (Type) [1] HUC	Beneficial Use(s)	Monitoring Objectives [2]	Freq [3]	Category(s)	Indicator(s) [4]
RRHMB (P) 114.24 (Russian River at Healdsburg Memorial Beach)	MUN, REC1, REC2, WARM, COLD, SPWN, MIGR, WILD,	1,2,3,4,9,10,11, 12,13	5 C 5 O	Contaminant Exposure, Biological Response, Pollutant Exposure, Habitat	Inorganic and Organic Water Chemistry, Chl-a, Nutrients, Total Organic Carbon, Dissolved Oxygen, Water Temperature, Vitellogenin
RRCLO (P) 114.26 (Russian River Cloverdale)	MUN, REC1, REC2, WARM, COLD, SPWN, MIGR, WILD,	1,2,3,4,9,10,11, 12,13	5 C 5 O	Contaminant Exposure, Biological Response, Pollutant Exposure, Habitat	Inorganic and Organic Water Chemistry, Chl-a, Nutrients, Total Organic Carbon, Dissolved Oxygen, Water Temperature, Vitellogenin
RRUKTL (P) 114.31 (Russian River at Tamadge - Ukiah)	MUN, REC1, REC2, WARM, COLD, SPWN, MIGR, WILD,	1,2,3,4,9,10,11, 12,13	5 C 5 O	Contaminant Exposure, Biological Response, Pollutant Exposure, Habitat	Inorganic and Organic Water Chemistry, Chl-a, Nutrients, Total Organic Carbon, Dissolved Oxygen, Water Temperature, Vitellogenin

Notes:
1. Type: P = Permanent, R = Rotating
2. Monitoring Objectives: From the November 30, 2000 Report to the Legislature, Section VI, Pages 22-25 (Attachment A)
3. Frequency: N = number of samples per FY, C= Conventional Water Chemistry O = Organic Water Chemistry
4. Indicator: From the November 30, 2000 Report to the Legislature, Section VII, Table 3, Pages 33-35 (Attachment A)

Other Monitoring Activities

We are involved in a number of other programs that are focused in nature, providing useful information on specific issues or areas:

Water temperature monitoring- Russian River

We are coordinating temperature monitoring in the Russian River watershed with the City of Santa Rosa, the Sonoma County Water Agency, and the California Department of Fish and Game. Station locations are discussed in the spring of each year, and specific protocols are agreed upon for data logger deployment, sampling frequency, and data logger retrieval and data downloading. We intend to expand that cooperative effort into other interested parties in the future.

MtBE monitoring – Lakes Sonoma and Mendocino

Under the SCWA contract we sample both reservoirs and their outlets for MtBE on a monthly basis during the summer recreation season at a number of sites and through the water column. A yearly report is produced each winter that details the findings.

Diel sampling – Russian River

We perform round-the-clock monitoring a few times a year for dissolved oxygen, pH, temperature, and conductance at several sites along the mainstem Russian River to support refinement of the Russian River water quality model. Nutrient samples are taken at specific intervals during the sampling periods.

Bacterial investigations – Bodega Harbor

The Sonoma County Department of Environmental Health monitors bacterial quality of beaches in the county under the SWRCB's Coastal Monitoring Program. High bacterial levels at some beaches in the Bodega Harbor area caused further investigation, including increased sampling frequencies and soliciting the assistance of the Bodega Marine Laboratory in investigating sources. Several potential sources exist and we are looking into using DNA analysis to determine the most likely sources. The Sonoma County Department of Environmental Health has a State Water Resources Control Board Clean Beaches grant to investigate sources using circulation studies and bacterial examinations employing DNA speciation.

Jenner Gulch Turbidity Monitoring

In conjunction with the Sonoma County Department of Transportation and Public Works, Regional Water Board staff conducts turbidity monitoring in Jenner Gulch to assess the potential impacts to the domestic water system for the community of Jenner. High turbidity levels have been known to cause the treatment plant to shut down operations. Potential sources include up-slope land management activities, especially associated with timber harvest operations and logging road conditions.

West College Avenue Ground Water Monitoring

Using Cleanup and Abatement Account funds, the Regional Water Board staff samples domestic wells in the West College Avenue at Clover Drive area of Santa Rosa, and is performing a hydrologic assessment in the area.

McMinn Superfund Area Ground Water Monitoring

Using funds from the Roseland Plan of Action program, the Regional Water Board staff samples domestic wells in the southwest area of Santa Rosa.